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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	Carro, et al.
Serial Number	:	09/754,845
Filing Date	:	January 4, 2001
Examiner	:	Matthew Smithers
Group Art Unit	:	2137
For	:	METHOD AND SYSTEM OF MARKING A TEXT DOCUMENT WITH A PATTERN OF EXTRA BLANKS FOR AUTHENTICATION

TO: The Honorable Commissioner of Patents
and Trademarks
Post Office Box 1450
Alexandria, VA 22313-1450

RESPONSE

Sir:

In response to the Official Action dated October 6, 2004, Applicants respectfully request consideration of the following remarks and the amendments made to the claims as set forth in the Appendix attached hereto.

Claims 1- 11 have been renumbered as Claims 12 – 22.

The present invention relates to the field of documents authentication. It is more specifically concerned with the authentication of soft or hard copies of plain text documents.

The main objects of the invention are:

- To provide a method to invisibly merge the information necessary to authenticate a text document into the body of the document itself under the form of extra inter-word blanks; and
- To have this method applicable to both, soft-copy (i.e., electronic) and hard-copy (i.e., printed) text documents.

The invention discloses how a text document can be marked through the insertion of (extra) inter-word blank characters for the purpose of becoming authenticable.

First, text to be marked is edited so as to obtain a canonical form of it conforming to a model. Then, from this canonical form of the text and a secret-key used as inputs, a unique combination of inter-word blank characters positions is computed in which extra blanks are inserted thus, obtaining a marked text document.

Authentication of a received marked text document is performed by a recipient, sharing the secret-key, further comparing the received text document to the marked text document (generated from said received text document), so that if they are matching exactly the received text document is accepted as authentic or rejected as fake if not.

The invention allows the user to invisibly merge the information necessary to authenticate a text document into the body of the document itself which works as well on soft-copy and hard-copy text documents.

The invention is based on the principle of generating by the sender of an original text document a "marked" text document, by means of an "automorphic" transformation (defined herein after), by:

- first, reducing the original text document to a "normalized" or "canonical text" (i.e., to another text document having the same content, the same words in the same order, but with a normalized, standard distribution of inter-words blanks characters), conforming to a model; and
- second, utilizing a cryptographic function (i.e., a function depending on a secret key) modify the distribution (i.e., the number) of inter-words blanks characters of the "canonical text" to generate a "marked" text document (i.e., one text also having the same content, the same words in the same order, but some of them being separated by a different number of blanks) that is transmitted to a recipient.

Where the transformation applied by the sender on the original text document to generate the "marked" text document is "automorphic" in the sense that:

- only when the received document is "authentic" (i.e., has been in fact sent by a person sharing the same secret key with the recipient, and the transmitted document has not been modified in any form "on the fly", during transmission from sender to recipient), if the recipient applies to the received text document the same transformation applied by the sender to the original text document (with the same secret key), then "the form remains invariant", in that the resulting "marked" text document results identical to the received text document.

[NOTE: In mathematics,, an automorphism is an isomorphism from an object to itself. It is, in some sense, a symmetry of the object, a way of mapping the object to itself while preserving all of its structure.]

(from Wikipedia, the internet free encyclopedia, at: <http://en.wikipedia.org/wiki/Automorphism>)

The main and distinctive features of invention are the following:

- The principle of the invention is based on "automorphic" (i.e., form preserving) transformations of text documents implemented by inserting and then removing (or vice versa), a number of extra blanks on certain (secret-key determined) inter-words intervals of said text documents.
- The invention can be applied for marking and authenticating both, soft-copy and hard-copy, text documents.
- The invention can be implemented to mark and authenticate documents edited by all commercial word processors (e.g., MS Word, Lotus WordPro, etc.).
- The invention can be applied to mark and to authenticate documents edited with all types of standard fonts and font sizes (including documents containing combinations of different types of standard fonts and font sizes).

The Examiner is respectfully requested to reconsider the rejection of Claims 1, 2, 7 and 10 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,313,564, entitled: "*Graphic Matter and Process and Apparatus for Producing, Transmitting and Reading the Same*," to Kafri et al. Kafri et al. discloses:

Field of the invention

This invention relates to graphic matter and process and apparatus for making and transmitting the same. More particularly, it relates to graphic, especially printed matter that should not be readable at any time by mere inspection, but only at predetermined times and/or particularly by predetermined persons; to process and apparatus for making such graphic matter, for transmitting it and for allowing such predetermined persons to read it. Examples of such matter are texts containing information that should not be understood without a certain effort, such as certain educational material, texts containing information that it is desired to protect from casual prying, and texts containing the authentication of a document which carries them. (Emphasis added)

Solely from the perspective of a disclosure, it is noted that the Abstract provides: "*An apparatus for composing a printable text, comprising coded characters, comprises: A--a text-composing device; B--a memory for storing character grids, representing clear characters, arranged in at least a coded font wherein the character grids are derived from a common, scrambled reference grid; and C--means associated with said text-composing device for selecting clear characters or character grids, as desired. A process for composing a printable text, comprising coded characters and graphic matter obtained thereby, are also described.*" (Emphasis added) Applicants reiterate the *Abstract of the Disclosure* of Kafri, et al. since the Examiner has cited it as a source for anticipation of the rejected claims.

Kafri, et al have as their objects as stated in the reference:

"It is a purpose of this invention to provide graphic matter, in particular printed texts, that cannot be read and understood except by authorized persons. ...

It is a further purpose to provide such matter which may be transmitted by means of conventional apparatus, in particular by telecopier.

It is a still further purpose to provide such matter which permits authentication of documents carrying it and of photostatic or other copies of an original document.

It is a still further purpose to provide an apparatus and a process for producing and visualizing and/or reading such graphic matter.

It is a still further purpose to provide such apparatus and process that permit the transmission of such graphic matter in a form that cannot be visualized and/or read by

unauthorized persons and subsequently visualizing and/or reading the same.

It is a still further purpose to provide apparatus and process for authenticating, by means of such graphic matter, documents, such as fiscally relevant documents, e.g. bills, receipts and the like, or documents bearing the seal of a company or a public authority or the like, or tickets or admission cards. (Emphasis added)

Applicants understand that with respect to a reference, it is the teaching of the specification and not the claims that provide the basis for anticipation. Claims 1 to 4 of Kafri, et al. essentially duplicate and reinforce the Kafri, et al. invention as summarized in the Abstract of the Disclosure and in the text. There is a radical difference with respect to the subject-matter and method of Kafri et al.'s patent and the instant application.

The focus of the Kafri et al. invention is embodied in the claims, as exemplified in Claims 1 - 4:

1. Process for **composing a printable text, comprising coded characters, by:**
defining, at least ideally, at least one blank grid;

creating a reference grid consisting of a scrambled distribution, as hereinafter defined, of at least two digitizable values in the cells of the blank grid;

creating at least one coded font by:

a. individually comparing each digital value of each character to be comprised in the font to the corresponding digital value of the reference grid; and

b. changing the digital value of the reference grid whenever the corresponding digital value of the character is one of the two possible values, and leaving it unchanged whenever it is the other possible value, whereby to create a scrambled character grid which represents the character;

storing in a memory commands for alternatively selecting characters or character grids, as desired; and

defining by means of a text composing device the desired text, wherein the clear characters are represented in a conventional way and the coded characters are represented by the corresponding character grids, whereby to compose the text.

2. Process for **producing a printed text, comprising coded characters, which comprises composing a text by the process of claim 1, wherein the character grids are stored in the memory of a print-controlling device, and printing the composed text by graphically defining:**

a) any clear characters in the conventional way,

b) any coded characters by signs representing the digital values of the respective character grids.

3. Process for producing and reading a printed text comprising coded characters, which comprises producing the text by the process of claim 2, and subsequently **identifying the cells of the character grids in which the digital values are different from those of the reference grid**, and visualizing each of said character grids in decoded form as a clear grid having the same dimensions as the character grids, wherein said cells having different digital values are differentiated from the background, whereby said differentiated cells form the clear characters corresponding to the scanned coded characters.

4. Process according to claim 3, wherein, in order to identify the cells of the character grids in which the digital values are different from those of the reference grid and to **create the clear grids**, a copy of the reference grid is provided on a transparent sheet, and correspondence marks are provided on the printed and optionally impaginated text and on said transparent copy, whereby when said transparent copy is superimposed to the printed text, so that a reference grid is superimposed to each character grid which is to be read, the coded characters become detectable in clear form and identifiable. (Emphasis added)

There are fundamental differences with respect to the method disclosed by Kafri, et al. and the instant application. The following distinctions are set forth between the instant invention and Kafri, et al. :

- The present invention is distinguished over Kafri, et al. as Applicants' scheme for encoding data (i.e., "marking") a text document is absolutely different from and unrelated to the Kafri, et al. system, since the Kafri, et al. "marking" is based on "scrambling". Basically Kafri, et al. take an original plain text document (fully readable) and marks it "*with coded, secret, non-readable, scrambled characters*" (see Kafri, et al., Figures 5, 6, 7, 17). From this point on, the differences of the method of the instant application and Kafri, et al. are substantial.

- The present invention is distinguished over Kafri, et al. as **the encoding method applied on Kafri, et al. is obstructive since it obscures by "scrambling" portions of the "marked" (scrambled) document**. Therefore, a part of distorting the reading of a marked text, code breakers can easily identify encoded (i.e., scrambled characters) and then edit, extract and decode, or even discard the encoded data. A distinctive feature the instant invention consists precisely in the difficulty experienced by an intruder to determine the inter-words intervals of a text where data must be (or has been) encoded. This fundamental element is missing in Kafri, et al.

- The present invention is distinguished over Kafri, et al. as Kafri, et al. is **oriented and purposely adapted solely for marking hard-copy (i.e., paper copy) text documents**, but not electronic, soft-copy documents (e.g., e-mail documents) generated by standard word processors and transmitted to recipients as files through a network. In fact, the attention of the Examiner is directed to the fact that the Kafri, et al. disclosure provides: “...*graphic matter, in particular printed texts, that cannot be read and understood except by authorized persons*”, such “*matter which may be transmitted by means of conventional apparatus, in particular by telecopier*”; to provide “*authentication of documents carrying it and of photostatic or other copies of an original document*”.

- The present invention is distinguished over Kafri, et al. as the **Kafri, et al. method cannot be applied to mark and to authenticate documents edited by standard commercial word processors (e.g., MS Word, Lotus WordPro, etc.)**. This is an important drawback of Kafri, et al. since even when a special designed word processor would be used by the originator of the document, to decode encoded received documents, the same special word processor must be used by the recipients of the marked document. In fact, the method of Kafri, et al. when applied to encode data on a document file (e.g., a DOC file generated by means of Microsoft Word) will produce a “non standard encoded document file”. This file will contain “non standard (scrambled) fonts characters”. The encoded file, once transmitted to a recipient may not be processed and decoded correctly at destination by a standard word processor, since it contains nonstandard (scrambled) fonts. Thus, using the method of Kafri, et al., a standard DOC file generates a nonstandard encoded file (not a DOC file that could be processed or correctly decoded) by Microsoft Word.

- The present invention is distinguished over Kafri, et al. as the **Kafri, et al. method presents problems for securely and reliably encoding data into documents edited with proportional and variable size fonts**. The reason is that, for variable size fonts, a “scrambled character” has variable and always a limited number of pixels. It becomes difficult to reliably encode “scrambled” fonts and to “de-scramble” (for detection purposes) very small fonts (e.g, about 3

pixels wide). It is noted that the basic unit for a font of any type is the "pixel size". Nothing is disclosed in Kafri, et al. about the optical effects derived from encoding, and even more, of decoding from printouts, data scrambled with this technique from documents edited using combined different font sizes (many documents are edited with variable font sizes). Even worse, very small fonts, clearly affect the overall optical resolution of the decoding method. Thus, it results evident that the decoding (as well as the encoding) method of Kafri, et al. lack of reliability and robustness.

- By way of contrast, the method of the application (being based on the insertion of full blank characters), can be readily applied to fixed-size and to variable-size or proportional size fonts and spaces; and to either, very small or very large fonts indistinctly.
- The present invention is distinguished over Kafri, et al. as the Kafri, et al. method requires specially adapted apparatuses different from commercial standard OCR devices, (e.g., "a transparent sheet", "correspondence marks", etc.), for decoding scrambled data and for enabling to read this de-scrambled data from a received document. In fact, the method of Kafri et al. for reading a received (scrambled) document, is succinctly described in Claims 3 and 4, wherein there is defined:

"3. A Process for producing and reading a printed text comprising coded characters, which comprises producing the text by the process of claim 2, and subsequently identifying the cells of the character grids in which the digital values are different from those of the reference grid, and visualizing each of said character grids in decoded form as a clear grid having the same dimensions as the character grids, wherein said cells having different digital values are differentiated from the background, whereby said differentiated cells form the clear characters corresponding to the scanned coded characters.

4. Process according to claim 3, wherein, in order to identify the cells of the character grids in which the digital values are different from those of the reference grid and to create the clear grids, a copy of the reference grid is provided on a transparent sheet, and correspondence marks are provided on the printed and optionally impaginated text and on said transparent copy, whereby when said transparent copy is superimposed to the printed text, so that a reference grid is superimposed to each character grid which is to be read, the coded characters become detectable in clear form and identifiable."

As to the specific claim rejections under 35 U.S.C. 102(b), with respect to Claim 1, the Examiner asserts that the Kafri, et al. disclosure teaches each and every element of the claim. Claim 12 (formerly Claim 1) provides:

12. A method of marking a text document [100] through the insertion of inter-word blank characters, said method comprising the steps of:

editing [110] the number of said inter-word blank characters of said text document in order to conform to a model thus, obtaining a canonical text document [120];

retaining, from said canonical text document, to further conform to said model, a subset of positions [230] of said inter-word blank characters, said subset of positions in which insertion of blank characters is permitted;

computing, using said canonical text document [120] and a secret-key as inputs [130], a unique combination of positions among said subset of positions;

inserting into each position [151] of said unique combination of positions at least one extra blank character thus, obtaining a marked text document [150].

The examiner refers to Kafri (Abstract; column 7; lines 11-14; column 7, lines 38-49; column 8, line 49 to column 9, line 20; column 12, lines 20-54; and column 16, line 1 to column 17, line 23), and observes that:

"Kafri teaches an apparatus marking printable text with coded characters using character grids (subset of positions of the coded characters) and a scrambled reference grid (secret key) to create a unique combination of character positions that are subsequently stored in the text document."

Applicants respectfully disagree with the above-cited rejection by the Examiner, since the method of the present invention has nothing in common with the Kafri, et al. method.

The present invention discloses:

"... how a text document can be marked through the insertion of inter-word blank characters for the purpose of becoming authenticable. First, text to be marked is edited so as to obtain a canonical form of it conforming to a model. Then, from this canonical form of the text and a secret-key used as inputs, a unique combination of inter-word blank characters positions is computed in which extra blanks are inserted thus, obtaining a marked text document. ..."

Kafri, et al., by way of contrast disclose:

"An apparatus for composing a printable text, comprising coded characters, comprises: A--a text-composing device; B--a memory for storing character grids, representing clear characters, arranged in at least a coded font wherein the character grids are derived from a common, scrambled reference grid; and C--means associated with said text-composing device for selecting clear characters or character grids, as desired. A process for composing a printable text, comprising coded characters and graphic matter obtained thereby, are also described".

Applicants do not identify in their invention anything that could be considered conceptually, functionally or operationally equivalent to Kafri, et al.'s essential technical items which they disclose as necessary for their invention, such as: *"coded characters/clear characters, character grids, coded fonts, scrambled reference grids, selecting clear characters or character grids", or "composing a printable text, comprising coded characters and graphic matter."*

Conversely, with respect to Kafri, et al., Applicants do not perceive any disclosure in the cited reference that could be considered conceptually, functionally or operationally equivalent to essential technical items of the present invention, such as: *"marking a text document through the insertion of inter-word blank characters, obtain a canonical form of a text document, compute a unique combination of inter-word blank characters, or ... obtaining a marked text document by inserting extra blanks on computed positions" ...*

Furthermore:

- While Claim 1 of the instant application (see Figure 1), discloses a method of "marking" an original text document "oText" [100] (for the purpose of authentication) through the manipulation (stripping, insertion) of "inter-word blank characters" [151], thus generating a "marked" text document "mText" [150] that preserves the readability of the original document

(i.e., both, "oText" and "mText" can be read "in the clear" by any user, being the only difference between them that the distribution of inter-words blank characters [151] of "mText" [100] is different from the distribution of inter-words blank characters [101] of "oText" [100]), the method of Kafri, et al. for "marking" a text document is absolutely different and unrelated, since Kafri takes an original plain text document (fully readable) and marks it *with coded, secret, non-readable, scrambled characters and fonts* (see Kafri, Figures 5, 6, 7, 17). From this point on, the differences of the method recited on Claim 1 of our application and that of Kafri, et al. are substantial.

- Claim 12, as written, defines a method for marking an original text document "oText" [100] for authentication and edits the number of inter-word blank characters [101] of this "oText" conforming to a model [110], to generate a canonical text document "cText" [120]. There is no anticipatory or even similar procedure or equivalent step in the Kafri, et al. reference.

- The instant invention, according to Claim 12, specifies or assigns on the canonical text document "cText" [120], a subset of inter-word blank intervals, on which the insertion of blank characters is permitted (for the purpose of authentication). In Kafri, et al. there is no such step of pre-assignment of intervals where insertion of blank characters may be allowed on a text document, since as has been noted before with respect to Kafri, et al., there is not an "insertion" of full blank characters on an original text document; but instead, as Figures 5, 6, 7, 17 of Kafri, et al. illustrate: *"...composing a printable text, comprising coded characters and graphic matter"*, (i.e., composed of readable and non-readable, scrambled, characters).

- The present invention, according to Claim 12, using as inputs, the canonical text "cText" [120] and a secret-key [130], computes a unique combination of positions [151] among a subset of positions of the canonical text "cText" [120], where blank characters must be inserted (for the purpose of authentication). In Kafri, et al., there is no step anticipating this computation step.

Observe that Kafri, et al. relates to the technical subject of marking portions of text documents by "scrambling" (similar to "encryption"), where scrambling a text document with an encryption routine can provide privacy, authentication, and control over who can read the scrambled data. In

Kafri, et al., portions of a text are scrambled (or graphically encrypted) in a basic way to give this privacy or authentication. A password can be used to encrypt and decrypt (scramble and unscramble) text portions, so if an incorrect password is used, the information will not be properly decrypted and read (or unscrambled) by a recipient.

Now, scrambled characters and scrambled portions cannot be read in the clear, but remain visible (as non-readable "glyphs"), thus affecting the readability of the scrambled document.

Quite differently, on the authentication method disclosed in Applicants' application, the encoded information remains invisible, since it is comprised of blank (i.e., space) characters that are inserted on the distribution of inter-words blank characters of a document.

- While Applicants' invention, according to Claim 12, specifies a procedure for generating a marked text document "mText" [150], by inserting at least one extra blank character on the unique combination of positions [151] of the canonical text "cText" [120] that has been computed (using the canonical text "cText" and a secret-key as inputs), in Kafri, et al. there is not anything similar to this.

The methods for marking text documents are different as between the reference and the instant application, since:

In Kafri, et al., the procedure for marking a document comprises replacing some printable (i.e., clear characters or fonts) by coded (i.e., "scrambled") characters or fonts, and this procedure is applied to specific (i.e., specified beforehand) words or phrases of the original document (see by instance Figures 5, 6, 7, 17 on Kafri). By way of contrast, the present invention encodes data on a textual document based on the principle of altering the number of inter-words blank characters, where, (for the purpose of authentication of a text document), a unique combination of positions, among a subset of positions where blank characters must be inserted is computed, those positions being spread and randomized, thus hiding the encoded integrity information in such a form to make practically impossible for an attacker to determine where (i.e., on which blanks intervals of the complete document) relevant integrity information of the text document has been (or must be) encoded.

Regarding Claim 13 (formerly Claim 2), the Examiner asserts that Kafri, et al. meets the claimed limitations as follows:

"13. The method according to claim 1 wherein said text document is actually a said marked text document [150] to be authenticated by a recipient sharing said secret-key [130], said method further comprising the step of:
comparing [160] said text document [100] to said marked text document [150];
if matching exactly [161]:
accepting said received text document as authentic;
if not [162]:
rejecting said received text document as fake."

The Examiner supports the anticipation rejection by referring to Kafri, et al. (column 2; lines 1-32; column 3, lines 24-30; and column 21, lines 18-45.).

Claim 13 (dependent on Claim 12) relates to the method disclosed in the instant application for authenticating by the recipient, a text document that has been marked by a sender according with the marking method recited in Claim 12. Now, since Applicants submit that Claim 12 is novel and inventive with respect to the teachings of Kafri, et al., Applicants disagree with this assertion by the examiner.

Moreover, the authentication method of Claim 13 of the instant invention differs from the authentication method disclosed by Kafri, et al. as recited in Kafri's patent that:

... *"the character grids represent authentication marks of a document bearing them and the decoded characters are visualized by checking the same against a comparison text and displaying at least one of at least two predetermined texts, depending on the results of said check"*.

There is nothing in the present invention that could be considered conceptually similar to those *"character grids representing authentication marks of a document bearing them"*, or to the operation of *"visualizing decoded characters and checking them by comparing against a comparison text"*, as defined by Kafri et al.

Observe, for instance, that to authenticate a text document, in accordance with the present invention, there is no need to check the received text *"by comparing [it] against a [independent]*

comparison text", as in Kafri, et al. Using an absolutely different principle, according with Claim 13 of the present invention, the recipient authenticates a received text document by comparing it with the document resulting of applying the same "marking" method disclosed in Claim 12 to said received text.

From the foregoing analysis Applicants therefore assert that there is nothing in the teachings of Kafri, et al. suggesting how the authentication method recited in Claim 13 could be derived from the teachings of the reference cited by the Examiner.

Regarding Claim 18 (formerly Claim 7), the Examiner asserts that Kafri, et al. anticipates and meets the claimed limitations as follows:

18. The method according to claim 1 wherein the step of computing a unique combination of positions further includes the steps of: calculating a digest [342] uniquely representing said secret-key [330] combined with said canonical text [320]; deriving from said digest a plurality of randomly distributed numbers [346] fitting in said subset of positions.

The Examiner supports the rejection by referring to Kafri, et al., column 7, lines 11-37; column 12, lines 20-54; and column 16, line 1 to column 17, line 23.

Claim 18 of the instant invention relates to the way in which the last two steps of the method, recited in Claim 12 of the invention, should be implemented, namely:

"computing, using said canonical text document [120] and a secret-key as inputs [130], a unique combination of positions among said subset of positions;

inserting into each position [151] of said unique combination of positions at least one extra blank character thus, obtaining a marked text document [150]."

With more detail, observe from the Figure 1 of the instant application that Claim 18 is directed to "*computing a unique combination of positions*" [151] (i.e., inter-words blanks intervals) where extra blanks characters must be inserted (to get the "marked" text document [150]).

This procedure has no relationship or dependence with the concepts and procedures described on the paragraphs of Kafri, et al.'s patent cited by the Examiner. For example, from Kafri, et al., column 7; lines 11-37:

"By "scrambled grid" is meant a grid which is sufficiently randomized to make the coded characters illegible without using the reference grid, including truly or approximately random grids. Routines are known for building what is called a "random grid", though in practice it is not exactly, but only "quasi-", viz. approximately, random. If it is desired to use a scrambled grid which contains less accumulations of "clots" of black (or 1) cells the routine is modified to: a) retain the white cell values which it defines; b) for each black value, check whether the following cell is white or black; c) if said following cell is white, retain the black value; d) if it is black, verify whether the preceding cell was white or black, and if it was white, retain the ensuing black value, but if it was black, reject it and determine a new value. Thus, the probability of having two adjacent black cells in the grid will be halved, and can be further reduced by repeating the same procedure, though care should be taken not to render the white cells become so predominant that the coded characters will become decipherable. On the other hand, it is to be understood that the use of a truly, or better, practically, random grid, as created by conventional random generation, is comprised in this invention, and therefore the expression "scrambled grid" is to be construed as including such random grids".

Observe that there is nothing similar in the procedure recited in the Claim 18 of the instant invention to the technical items or procedures defined and used by Kafri, et al. such as a *"reference grid"* (see Kafri, et al., Figure 2), or a *"blank grid"* (see Kafri, et al. Figure 3), or a *"scrambled or character grid"* (see Kafri, et al. Figure 4), or to any other items (such as: *"random grids", "scrambled grid", grids which contains ... accumulations of "clots" of black (or 1) cells,...*) or to any process aimed to scramble characters or fonts of a text document, as Kafri, et al. does.

There is nothing in the procedure recited in Claim 18 of the instant application that could be considered by the people skilled in the art as conceptually similar or derived from the teachings of Kafri, et al.'s patent.

In fact, people skilled in the art immediately appreciate that, while in the instant invention the "randomization" is applied to the distribution of inter-words blank intervals of a text document where (extra) blank characters must be inserted for "marking" (i.e., encoding) said document, the

"randomization", as used by Kafri, et al. consists of the generation of "scrambled" fonts or characters, so as to make them difficult (or impossible) to decode or read by an occasional reader.

Regarding **Claim 21**, the Examiner asserts that Kafri, et al. meets the claimed limitations as follows:

21. An authentication system, in particular a system for authenticating text document, comprising means adapted for carrying out the method defined in Claim 12.

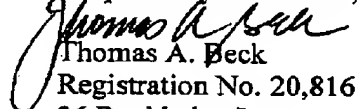
The Examiner refers to Kafri, et al. (Abstract; column 7; lines 11-14; column 7, lines 38-49; column 8, line 49 to column 9, line 20; column 12, lines 20-54; and column 16, line 1 to column 17, line 23), and observes that:

"Kafri teaches an apparatus marking printable text with coded characters using character grids (subset of positions of the coded characters) and a scrambled reference grid (secret key) to create a unique combination of character positions that are subsequently stored in the text document."

Now, since Claim 21 seeks to provide *a system for authenticating a text document, comprising means adapted for carrying out the method defined in Claim 14*, it is respectfully submitted that that the subject-matter of Claim 21, which is designed to provide implementation according to the method recited in Claim 12 (and to any one of dependent claims 13 to 20) involve in fact an inventive step in regard of Kafri.

Claim 14 has been amended to include the elements defined in Claims 12 and 13. This should make Claim 14 and those dependent thereon allowable. In view of the arguments submitted and the amendments made to the claims, the claims in this case are allowable. Such favorable action is respectfully requested.

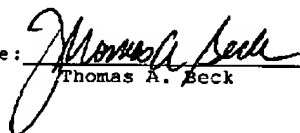
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I hereby certify that this paper is being telefaxed on the date indicated below to (703) 872-9306 addressed to Commissioner of Patents & Trademarks, Washington, D.C. 20231

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Thomas A. Beck

Date: January 6, 2005